



## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

**Benzene**

Office of Land Quality – Science Services Branch

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[www.idem.IN.gov](http://www.idem.IN.gov)

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**Description:**

- Benzene, also known as benzol or mineral naphtha, is a colorless liquid with a sweet odor. It is highly flammable and evaporates quickly.
- Benzene is a widely used chemical formed from both natural processes and human activities. Benzene is produced naturally by volcanoes and forest fires and is a natural part of crude oil, gasoline and tobacco smoke. Industries utilize benzene to make plastics, resins, synthetic fibers, rubber lubricants, dyes, detergents, drugs and pesticides.

**Environmental Impacts:**

- The most common ways citizens are exposed to benzene in outdoor air are from gasoline vapors while filling a vehicle's tank, from automotive exhaust, from tobacco smoke, or from industrial emissions. Indoor air generally contains higher levels of benzene than outdoor air, from sources such as tobacco smoke, glues, paints, furniture wax, and detergents.
- Though it can easily evaporate, benzene can get into the soil, mostly as a result of spills, leaking underground storage tanks, and improper disposal. It may seep through soil and mix with ground water, contaminating water that Indiana citizens use.
- Benzene can vaporize from a ground water source and travel through soil pores, rock fissures and along utility pipes to enter buildings. This is referred to as "vapor intrusion."
- Ensuring that benzene is used and disposed of properly protects public health and the environment.

**Health Impacts:**

- Benzene exposure may occur through:
  - Drinking water from a ground water source contaminated with benzene;
  - Breathing air containing benzene vapors; and
  - Skin contact if you handle gasoline or other products that contain benzene.
- The United States Environmental Protection Agency (U. S. EPA) classifies benzene as "carcinogenic to humans." Long-term exposure to high levels of benzene can cause leukemia and cancers of the blood-forming organs (bone marrow, lymph nodes, and spleen).
- Health impacts depend upon how much, how long, how often, and the way you are exposed. Young children, the elderly, and people with on-going health problems are more at risk for negative health impacts from benzene exposure.
- Breathing high levels of benzene may result in a rapid heart rate, dizziness, tremors, headache, and drowsiness.
- Breathing high levels of benzene for long periods of time may cause serious problems with the production of blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and affect the immune system.
- Drinking high concentrations of benzene can cause an irritated stomach, vomiting, rapid heart rate, dizziness, convulsions, and sleepiness.

### **IDEM's Role:**

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial, and governmental operations vital to a prosperous economy.
- IDEM's Office of Water Quality enforces the federal drinking water standard for benzene, five parts per billion (5 ppb). IDEM suggests that citizens stop drinking water containing more than 5 ppb of benzene.
- IDEM's Office of Air Quality regulates the amount of benzene industries can release into outdoor air.
- IDEM's Office of Land Quality regulates the disposal and cleanup of benzene.

### **Citizen's Role:**

There are a number of actions every citizen can take to reduce benzene exposure for themselves and others:

- Follow the manufacturer's label instructions when you use and dispose of products containing benzene.
- When dispensing gasoline, avoid breathing in the vapors. Use or handle gasoline in well ventilated areas.
- Adults are encouraged not to smoke in their home, in enclosed environments, or near children.
- If you use a private well for your home water supply, routinely test the water to make sure it is safe to drink.

### **Additional Information:**

- For more information on benzene and vapor intrusion please visit IDEM's websites at [www.idem.IN.gov/4141.htm](http://www.idem.IN.gov/4141.htm) and [www.idem.IN.gov/4337.htm](http://www.idem.IN.gov/4337.htm). Also see the Agency for Toxic Substances and Disease Registry (ATSDR) website at <http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=14>
- Contact the Indiana State Department of Health, Office of Environmental Epidemiology at (317) 351-7190, if you suspect you have been exposed to benzene.
- For questions and concerns about benzene contamination or environmental cleanup, contact IDEM's Office of Land Quality at (317) 232-3215 or (800) 451-6027, ext. 2-3215.
- To report an accidental release or spill, call IDEM's 24-Hour Spill line at (888) 233-7745.